

**2007 KANSAS**  
**SEVERE WEATHER AWARENESS WEEK**  
MARCH 12-16, 2007

**TORNADO SAFETY DRILL TUESDAY, MARCH 13th**  
1:30 PM CDT

**INFORMATION PACKET**  
National Weather Service



## County Emergency Management Official /Director,

The National Weather Service, the American Red Cross and the Kansas Emergency Management agency, again request your participation in “**Kansas Severe Weather Awareness Week**” activities from March 12 – 16, 2007. The annual statewide tornado drill will take place during the day, Tuesday, March 13<sup>th</sup> at 1:30 pm CDT, with a backup date of Thursday, March 15<sup>th</sup>.

Enclosed is tornado and severe weather information that can be used by you and your staff for preparedness activities in the local jurisdiction. Feel free to duplicate and distribute this information as necessary.

2006 was another year where the number of tornadoes 92 far exceeded the average of 55. In 2005, a record 135 tornadoes occurred across the state of Kansas. In addition, numerous severe thunderstorms caused millions of dollars in damage to property and crops by producing damaging winds, large hail and torrential rainfall.

Kansans live with the threat of severe weather year round. Kansas Severe Weather Awareness Week is a great time to prepare for severe weather. Families should practice their severe weather safety plan at home, work, school or other public locations that they frequent. They should develop a safety plan for times when they are participating in outdoor recreation activities, sporting events, or working outdoors. Each Kansan should know where to go should severe weather strike their location.

All Hazards NOAA Weather Radio is like having your personal tornado siren in your home or vehicle. We encourage Kansans to purchase a weather radio and have it programmed to their county and/or surrounding counties to receive severe weather warnings and information directly from the National Weather Service. Now is a great time to replace the back up battery in your NOAA All Hazards Weather Radio so that you get severe weather information even if the power goes out.

As always, the National Weather Service offices that serve the state of Kansas look forward to partnering with you and your staff to help Kansans prepare for severe weather. Please contact the Warning Coordination Meteorologist at your local office if you have any questions or comments regarding this packet. Visit our webpages for the latest forecasts and severe weather information.

[www.weather.gov/topeka](http://www.weather.gov/topeka)  
[www.weather.gov/wichita](http://www.weather.gov/wichita)  
[www.weather.gov/dodgecity](http://www.weather.gov/dodgecity)  
[www.weather.gov/goodland](http://www.weather.gov/goodland)  
[www.weather.gov/kansascity](http://www.weather.gov/kansascity)  
[www.weather.gov/springfield](http://www.weather.gov/springfield)  
[www.weather.gov/hastings](http://www.weather.gov/hastings)



## 2006 Kansas Tornado Facts

**Tornadoes:** 92 (37 above the 1950-2006 average of 55)

**Deaths:** Zero    **Injuries:** 18

**Longest Track:** 17.0 miles (Washington County - April 6)

**Strongest:** F2 (March 30, April 1, April 6)

**Most in a county:** 10 (Ford County - October 26)

**Days of occurrence:** 22

**Most in one day:** 28 (October 26)

**Most in one month:** 28 (October, new record for highest October total since 1950. Previous record 19 in 2000.)

**Record Months:** January (3);    **October** (28)

**First tornado of the year:** January 28 (Harvey county, 3:17 pm CST)

**Last touchdown of the year:** October 26 (Comanche County, 5:44 pm CDT)



October 26, 2006 in SW Kansas. Photo taken by Mike Umscheid – NWS Dodge City

### ----- 2006 Monthly Tornado Totals -----

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Total	3	0	10	19	9	10	1	3	9	28	0	0	92	100%
F5	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
F4	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
F3	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
F2	0	0	1	2	0	0	0	0	0	0	0	0	3	3%
F1	0	0	3	7	2	2	0	1	1	2	0	0	18	20%
F0	3	0	6	10	7	8	1	2	8	26	0	0	71	77%

**Yearly Summary:** The number of Kansas tornadoes in 2006 fell short of the 2005 record-breaking year of 135. In 2006, 92 tornadoes were reported in the state, but this is still 37 above the 1950-2006 average of 55. There were two record months during the year. An outbreak of 28 tornadoes occurred on October 26. This broke the previous record of 19 for October set in the year 2000. Another record occurred in January when 3 tornadoes were reported. That was the first January since 1950 when tornadoes occurred in Kansas.

**Other Kansas Tornado Facts:** No violent (F4, F5) tornadoes occurred in 2006, with only three strong (F2, F3) tornadoes. The October outbreak of 28 tornadoes on the 26<sup>th</sup> is tied for third place for the most Kansas tornadoes in one day. The most tornadoes occurring on one calendar day in Kansas is June 15, 1992 when 39 tornadoes developed. The best news is no one in Kansas lost their life in 2006 as a result of a tornado, but unfortunately there were 18 injuries.

# KANSAS TORNADO STATISTICS

## by County

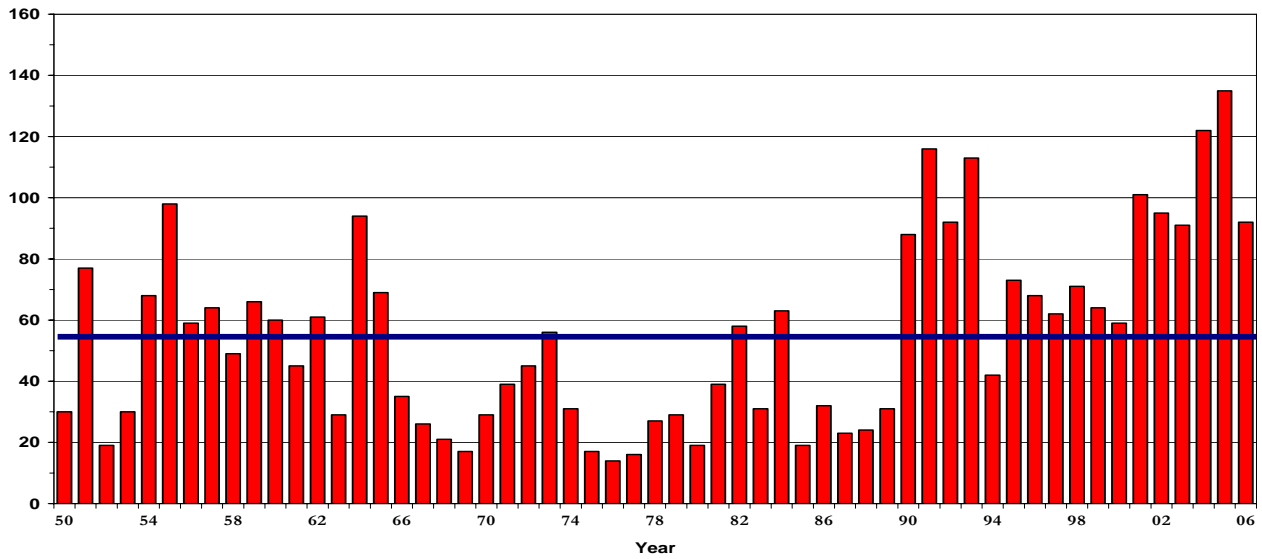
### 1950 - 2006

### TORNADOES, FATALITIES, AND INJURIES

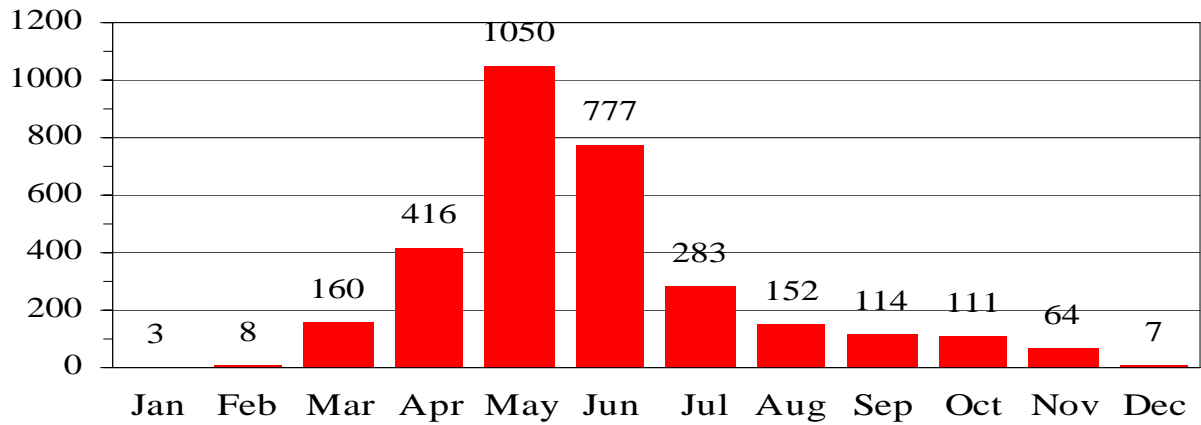
County	Tor	Fat	Inj	County	Tor	Fat	Inj	County	Tor	Fat	Inj
Allen	22	0	4	Greenwood	34	0	10	Pawnee	41	0	1
Anderson	11	3	12	Hamilton	19	0	1	Phillips	35	0	1
Atchison	14	0	11	Harper	54	0	1	Pottawatomie	29	0	5
Barber	23	0	2	Harvey	46	1	63	Pratt	52	0	7
Barton	64	2	37	Haskell	21	0	10	Rawlins	43	0	4
Bourbon	16	0	7	Hodgeman	39	0	4	Reno	58	0	20
Brown	41	0	5	Jackson	28	3	17	Republic	48	0	1
Butler	61	28	225	Jefferson	39	0	101	Rice	35	0	6
Chase	33	0	2	Jewell	30	0	1	Riley	25	0	51
Chautauqua	15	0	0	Johnson	31	4	12	Rooks	40	0	6
Cherokee	33	4	41	Kearny	30	0	0	Rush	28	0	8
Cheyenne	33	0	0	Kingman	44	0	1	Russell	61	1	7
Clark	23	0	0	Kiowa	25	0	11	Saline	27	0	66
Clay	33	1	31	Labette	31	1	29	Scott	35	1	1
Cloud	42	1	8	Lane	18	0	2	Sedgwick	75	13	321
Coffey	19	0	5	Leavenworth	28	2	30	Seward	32	0	15
Comanche	24	0	2	Lincoln	26	0	2	Shawnee	44	18	528
Cowley	50	77	291	Linn	11	0	3	Sheridan	18	0	0
Crawford	33	4	43	Logan	17	0	0	Sherman	84	0	0
Decatur	39	0	5	Lyon	39	6	217	Smith	38	0	1
Dickinson	32	0	9	McPherson	41	1	16	Stafford	43	0	3
Doniphan	16	0	2	Marion	43	1	2	Stanton	18	0	0
Douglas	33	1	48	Marshall	28	0	1	Stevens	23	1	5
Edwards	25	0	5	Meade	36	0	0	Sumner	70	5	14
Elk	22	2	8	Miami	18	0	9	Thomas	38	0	1
Ellis	44	0	5	Mitchell	42	0	5	Trego	44	5	101
Ellsworth	39	0	0	Montgomery	31	1	1	Wabaunsee	28	0	14
Finney	74	1	39	Morris	27	0	7	Wallace	27	0	4
Ford	68	0	0	Morton	18	1	2	Washington	30	2	12
Franklin	25	3	34	Nemaha	29	0	1	Wichita	21	3	4
Geary	16	0	3	Neosho	28	0	4	Wilson	13	0	0
Gove	23	0	1	Ness	32	0	4	Woodson	11	0	8
Graham	31	0	0	Norton	18	0	0	Wyandotte	9	2	36
Grant	24	0	9	Osage	36	17	6	<b>Total</b>	<b>3471</b>	<b>217</b>	<b>2727</b>
Gray	27	0	3	Osborne	36	0	2				
Greeley	26	0	0	Ottawa	21	1	4				

KANSAS SEVERE WEATHER AWARENESS WEEK  
MARCH 12-16, 2007

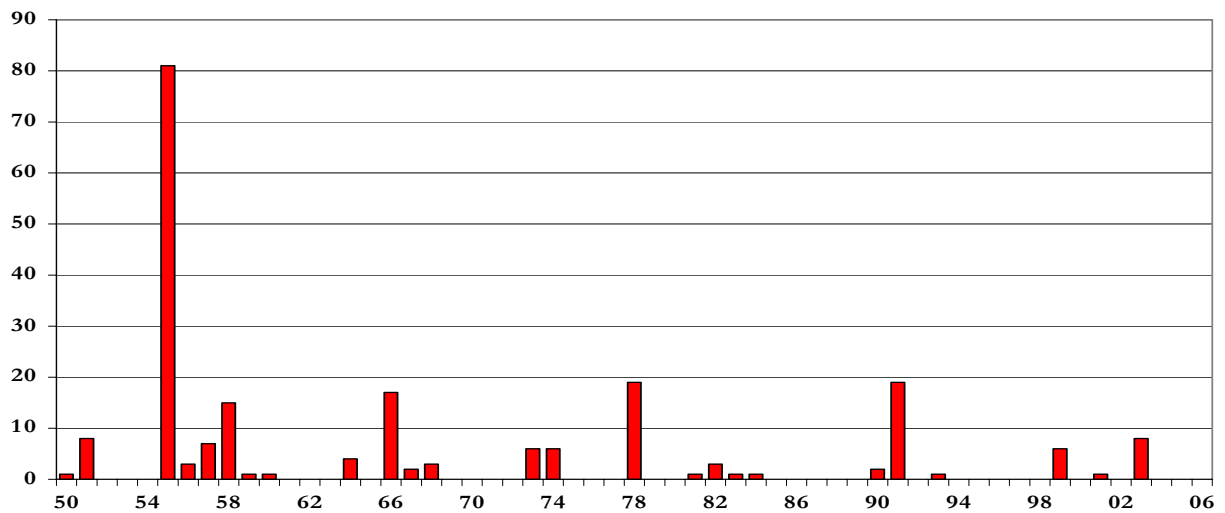
## Kansas Tornadoes



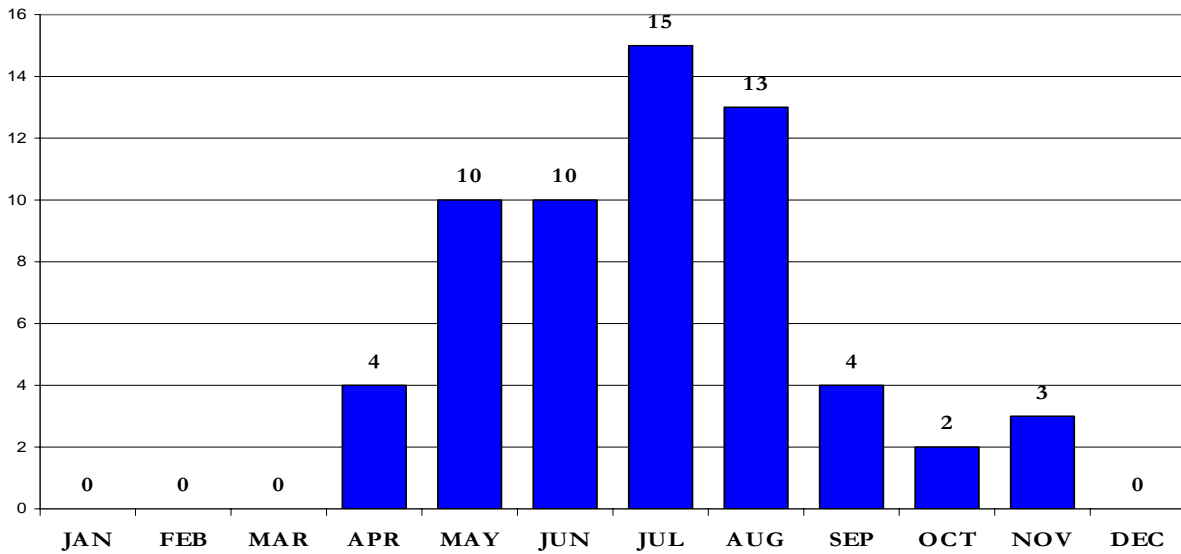
## Kansas Tornadoes 1950-2006 Total 3145, Average 55.18/year



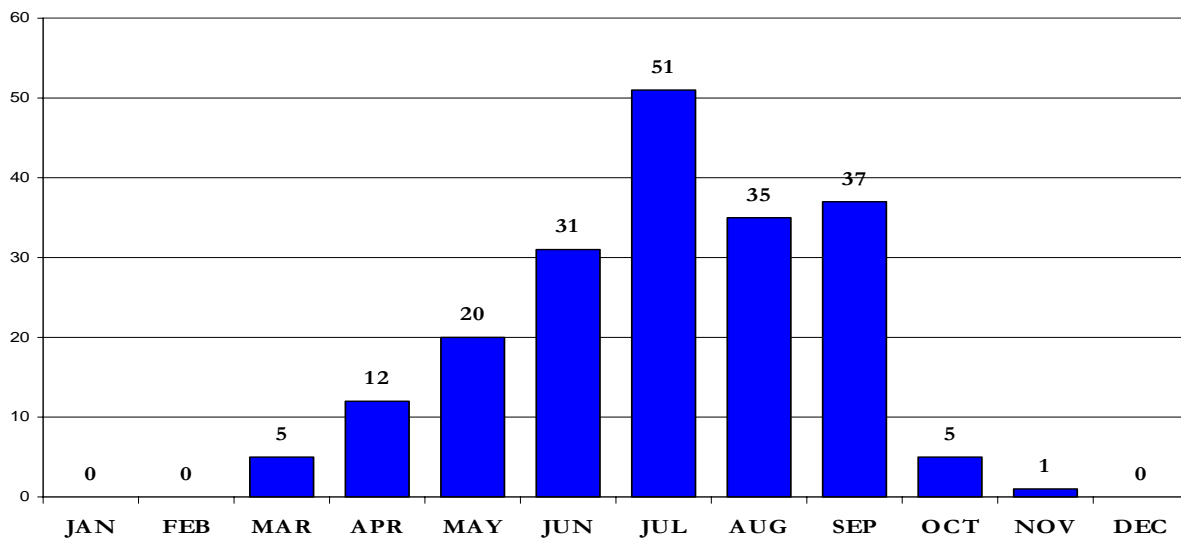
## Kansas Tornado Deaths



## Kansas Lightning Deaths 1959 - 2006



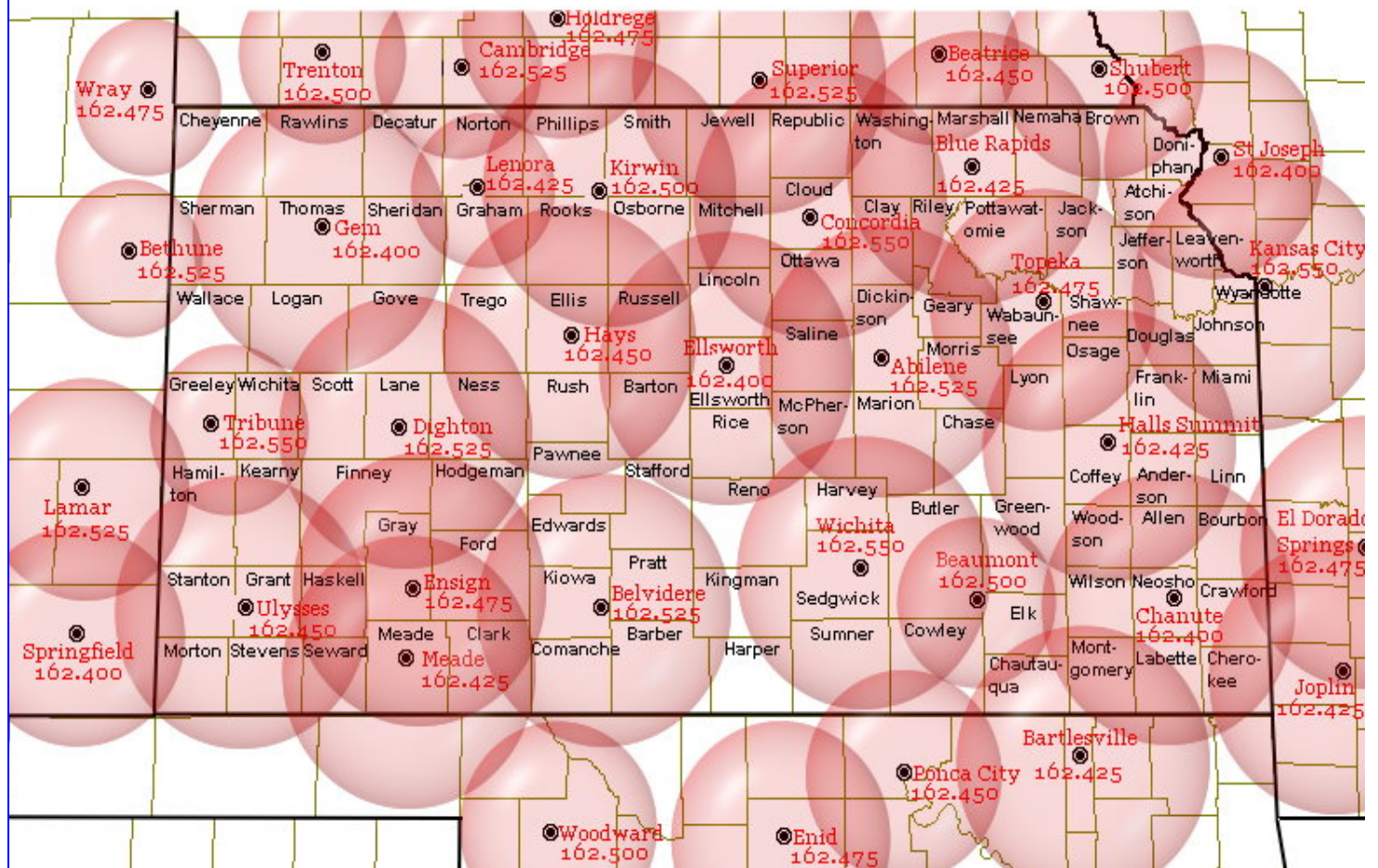
## Kansas Lightning Injuries 1959 - 2006



KANSAS SEVERE WEATHER AWARENESS WEEK  
MARCH 12-16, 2007



# Kansas Area NOAA All-Hazards Weather Radio Stations



# North Central, Northeast, and East Central Kansas

## Weather Summary – 2006

National Weather Service Topeka, KS

The severe weather season got off to an early start in 2006. Two tornadoes occurred on January 28<sup>th</sup>. One in northeast Clay County and one in southeast Washington County. Both tornadoes were F0 and produced minor damage.

On March 12<sup>th</sup>, an early morning round of severe thunderstorms brought large hail and damaging thunderstorm winds to several counties. Hail up to the size of tennis balls was reported in Burlingame resulting in considerable damage to homes and vehicles. Golfball to tennis ball size hail was also reported in Morris, Shawnee, Geary, Douglas, Jefferson, Pottawatomie, and Wabaunsee Counties. A severe thunderstorm produced straight line winds of up to 90 mph and caused damage throughout Lawrence. Seventy buildings on the KU campus were damaged, semi-trailers were overturned, 60 foot silos fell, and homes and trees were damaged. Damage was estimated at \$8M and the governor issued a State of Emergency for Douglas County. Later that afternoon, more thunderstorms developed and produced large hail over parts of east central Kansas.



Severe thunderstorms moved through northeast Kansas again on March 30<sup>th</sup>. Thunderstorms produced tennis ball sized hail in Ottawa County. Later in the afternoon, a F1 tornado damaged two farmsteads in eastern Nemaha County before crossing into Brown County where it damaged another home.

On April 6<sup>th</sup>, six tornadoes occurred in north central Kansas. One F0 tornado touched down in southeast Ottawa County. One F1 tornado touched down in northwest Dickinson County where it destroyed several outbuildings and flipped a mobile home on its side. Two F0 tornadoes were reported by storm chasers to be on the ground at the same time in southwest Clay County. A F1 tornado touched down 2 miles west of Clay Center and was reported to be up to a ½ mile wide at times. It damaged several outbuildings, roofs and irrigation pivots along its 9 mile path. A F2 tornado cut a 17 mile long path through eastern Washington County before crossing the Nebraska state line. This tornado was sighted by many storm chasers and spotters. Strong F2 damage was noted near the intersection of Highways 36 and 148, where the roof was peeled off and some exterior walls were knocked down on a brick home.



On April 15<sup>th</sup>, violent weather returned to northeast Kansas when 5 tornadoes occurred along with large hail and damaging winds. There was a brief touchdown of a F0 tornado in northeast Pottawatomie County. A F0 tornado touched down in northwest Jackson County and damaged outbuildings in its path. Two F0 tornadoes touched down briefly in south central Brown County. A F1 tornado destroyed 4 well maintained outbuildings and trees at a farmstead. Another brief F0 tornado caused minor damage to a home and trees in east central Brown County.

Large hail and straight line winds were reported in northeast Kansas on April 23<sup>rd</sup>. Straight line winds of 70 mph blew the roofs off two boat houses on Perry Lake marina. Hail up to the size of tennis balls caused \$4M dollars in damage to homes and vehicles in Lawrence.

**KANSAS SEVERE WEATHER AWARENESS WEEK**  
**MARCH 12-16, 2007**



In May, three inches of rain fell in west central Anderson County on the 21<sup>st</sup>. Streams rose out of their banks with water flowing over rural roads. Heavy rainfall caused storm drains to become blocked with debris on the 29<sup>th</sup> in Topeka. Portions of I-70 in the western part of the city were closed due to water on the roadway. Flash flooding occurred in central Washington County on the 29<sup>th</sup> when 4.65 inches of rain fell in less than 2 hours. On the 30<sup>th</sup> and 31<sup>st</sup>, flash flooding occurred in Lyon, Osage, Anderson, Coffey, Ottawa, and Republic Counties. Hardest hit was the city of Emporia, where widespread street flooding affected the city. There were water rescues of stranded motorists people and many homes and businesses were flooded.

On June 16<sup>th</sup>, severe thunderstorms produced straight line winds of 60 to 75 mph across Morris, Dickinson, Lyon, Wabaunsee, and Shawnee Counties. Damage to trees and structures was reported. On the 20<sup>th</sup>, damaging thunderstorm winds were accompanied by heat bursts in northern Shawnee and southern Jackson



Counties during the early morning hours. On the 21<sup>st</sup>, a F0 tornado touched down briefly in northeast Republic County and hail up to 3 inches in diameter fell in central Cloud County.

July was a relatively quiet month as far as severe storms go, but two periods of extremely warm

temperatures occurred during the month. From the 16<sup>th</sup> through the 20<sup>th</sup> and again on the 29<sup>th</sup> through Aug. 1<sup>st</sup>. Heat indices from 105 to 115 degrees were reported at several locations.

On Aug. 25<sup>th</sup>, straight line winds up around 80 mph produced significant damage in northwest Morris County. Train cars were derailed, an old theater was damaged, farm outbuildings and implements were damaged.

On September 21<sup>st</sup>, two F0 tornadoes occurred in Ottawa County. Both were observed by storm spotters and law enforcement. No damage or injuries were reported.

Quiet weather returned in the fall. A winter storm occurred from November 29<sup>th</sup> through December 1<sup>st</sup> and produced a period of freezing precipitation and sleet in east central Kansas on the 29<sup>th</sup>. This was followed by snowfall of 6 to 10 inches on the 30<sup>th</sup> through the early morning on the 1<sup>st</sup>. The counties that were hit hardest were Franklin, Anderson, Coffey, Osage, Lyon and Douglas.

## South Central and Southeast Kansas

### Weather Summary – 2006

National Weather Service Wichita, KS

Tornadoes, large hail and damaging straight line winds—these are terms every seasoned Kansan knows well during the spring and summer months. Unfortunately, south-central and southeast Kansas lived up to its notorious reputation for severe weather this past spring and summer. But thunderstorms were not the only contributor of significant weather; drought led to massive spring wildfires, and a mid-summer heat wave claimed several lives across the area. While every significant weather event, no matter how big or small, is treated with the utmost respect and importance by The National Weather Service, only the largest events will be highlighted in this article. These events include: the February 9-10th Reno/Harvey County wildfire, the March 8-9th Butler County wildfire, the March 30th Reno County wildfire, the March 30th Montgomery County tornado, the April 6th Labette County tornado, the April 24th Wichita hail storm, the July 16-20th heat wave, and the November 30th snowstorm in Southeast Kansas.

#### February 9-10th Reno/Harvey County Wildfire

At approximately 2:15 pm, February 9th a large grass fire broke out along the Reno/Harvey County line just north of Burrton. The fire spread quickly, fed by drought conditions and sustained winds of 25 to 35 mph. The fire was eventually extinguished late in the day on February 10th, but not before scorching 8,800 acres and causing approximately \$30,000 of damage to ranch and farmland. In all, 70 firefighting units from 6 counties valiantly worked the fire.

#### March 8-9th Butler County Wildfire

A large fire started in the early afternoon hours of March 8th, just east of Towanda. The fire spread quickly, fed by continued drought conditions and very strong southwesterly winds. The fire caused thick smoke to blow across the Kansas Turnpike, resulting in a two-car accident. In all, the fire charred 10,700 acres of grassland, damaged or destroyed 10 outbuildings, caused minor damage to two homes, set three oil wells ablaze, and caused the evacuation of Oil Hill Elementary School. Approximately 34 state, county, and city agencies valiantly fought the fire, which was declared officially extinguished by 9:00 am, March 9th.

#### March 30th Reno County Wildfire

During the early afternoon hours of March 30th, a large wildfire broke out just east of the Hutchinson Airport, near the intersection of 17th Avenue and Obee Road. 300-400 people were evacuated from a 21 square-mile area during the late afternoon and evening hours. The fire was eventually extinguished by late Saturday afternoon, April 1st. Five houses and 20 outbuildings were destroyed, and numerous campers, automobiles and farm implements were damaged or destroyed. In all, 5,400 acres were scorched, causing an estimated 1.1 million dollars in damages. Thankfully, no one was injured.

#### March 30th Montgomery County Tornado

Shortly after 4 pm CST on the 30th, a tornado touched down 3 miles northeast of Havana in Montgomery County. The tornado produced F2 damage 4 miles north of Wayside, and again 2 miles southwest of Sycamore.

Several homes and mobile homes were damaged or destroyed along its 16 mile path. The most concentrated damage occurred roughly 2 to 3 miles southwest of Sycamore in the township of Radical, where several homes and mobile homes sustained moderate to major damage. Numerous trailers were overturned at Elk City Lake,



KANSAS SEVERE WEATHER AWARENESS WEEK  
MARCH 12-16, 2007

along with damage at Elk City Lake State Park. Unfortunately, one man was seriously injured 3 miles southwest of Sycamore, when his home was hit by the tornado. In all, the tornado caused an estimated one million dollars in damage.

#### **April 6th Labette County Tornado**

Shortly after 6 pm CST on the 6th, an F1 tornado entered Labette County from Oklahoma, 3 miles southwest of Chetopa. The tornado tracked to the east-northeast where it damaged 2 homes and destroyed a mobile home just south of Chetopa. Twelve injuries occurred with this storm. The tornado also flipped a tractor trailer on highway 59. The tornado exited Labette County about 1 mile south of highway 166 and moved into Crawford County. Along its 4 mile path, the tornado caused an estimated \$225,000 in damage.

#### **April 24th Sedgwick County Hailstorm**

An early morning severe thunderstorm pounded western and central portions of Sedgwick County with destructive hail as large as 3 inches in diameter before 6:30 AM. Several instances of 1.75 to 3 inch hail occurred from Goddard into western and central portions of Wichita, roughly between 13th and Kellogg, and east into the downtown area. The large hail inflicted widespread property damage across the Wichita area, some of which was rather severe, to automobiles, homes, and businesses. In all, the hailstorm caused an estimated 70 million dollars in damage. It was the costliest hailstorm to hit Wichita since 1992.

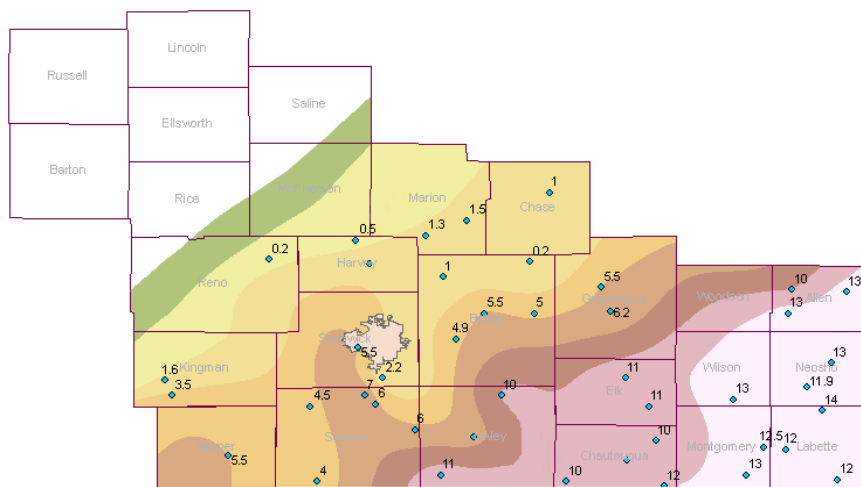


#### **July 16-20th Heatwave**

From July 16-20, a deadly heat wave gripped much of central, south-central and southeast Kansas. Broad high pressure in the mid and upper levels of the atmosphere caused temperatures to soar into the 105-110 degree range. The cover of darkness provided little in the way of relief, as overnight temperatures were slow to fall off, reaching only the upper 70s by sunrise for many locations. Unfortunately, the prolonged heat claimed five lives across south-central and southeast Kansas. Three occurred in Wichita, one in Iola, and another in Coffeyville. The heat unofficially claimed three other lives, two in Wichita and one in Coffeyville. Additionally, dozens of individuals across central, south-central and southeast Kansas were treated for heat-related illnesses.

#### **November 29-30 Snowstorm**

The winter storm produced areas of freezing rain and abnormally high amounts of snow across much of Southeast Kansas. Snowfall amounts across the area exceeded 12 inches in some locations and almost paralyzed the area for a couple of days.



**Extreme Southeast Kansas  
Weather Summary – 2006**  
National Weather Service Springfield, MO

The March 12th tornado outbreak impacted many communities across the Missouri border. In Kansas, one of the storms moved through the community of Frontenac and caused severe straight line winds. A few structures sustained wind damage from this storm that was estimated at \$20,000 in monetary losses.

From January through April...extreme southeast Kansas experienced an ongoing drought that began in 2005. The U.S. Drought Monitor had analyzed the region within severe to extreme drought during these months. The final week of April extreme southeast Kansas experienced some beneficial rains that improved their drought status to below severe.

A couple of tornadoes struck Cherokee County that was a continuation of a tornado that developed over Craig County, Oklahoma...and tracked through extreme southeast Labette County and into Cherokee County. This initial tornado was rated as F-0...and impacted areas near Faulkner along Highway 166. The tornado lifted and the storm produced another tornado on the eastern side of the County near the community of Lawton. This second tornado was rated an F-1 as it later tracked into Jasper County, Missouri. Several other storms produced marginal straight line wind damage and large hail up to the size of golf balls during the month of April.

In May...a weak F-0 tornado touched down in southeast Bourbon County near the community of Garland. This tornado mainly damaged trees as it eventually tracked into Vernon County, Missouri.

Unusually...no severe weather occurred in the month of June...and only one straight line wind report occurred in Cherokee County in the month of July.

During the month of August...pulse thunderstorms impacted the area on two separate days. August 9th and August 26th...power lines were downed from microburst winds in Crawford and Cherokee Counties. Damage estimates to power poles were around 17,000.

Tornadoes: 3

Total Damage Estimates for all hazardous weather: \$37,000

## **North Central Kansas Weather Summary – 2006**

National Weather Service Hastings, NE

It was a rather quiet severe weather season in 2006

On May 8th, a line of severe thunderstorms rumbled across north central Kansas and produced golf ball size hail in Smith County. The Smith County Emergency Manager reported some low land flooding of primarily agricultural fields due to heavy rain and runoff.

A warm front lifted north across north central Kansas on May 26<sup>th</sup>, and produced hail and high winds. One Quonset had its roof taken off due to the damaging winds in northern Phillips county. On May 31st, a series of slow moving thunderstorms dumped a quick 2.25 to 4.50 inches of rain near Simpson in Mitchell County. The rain fell in about one hour's time and caused minor flooding in the town of Simpson and surrounding areas.

June 5<sup>th</sup> saw 60 to 65 mph winds from severe thunderstorms in Jewell and Mitchell counties and on June 29th, severe crop damage was reported around Lebanon and Burr Oak due to quarter to golf ball size hail driven by 50+ mph winds. The worst damage occurred in a swath from 4 miles north of Lebanon to 5 miles north of Burr Oak, where fields of wheat, corn and soybeans were totally destroyed.

July 13<sup>th</sup> brought a significant severe weather event to north central Kansas with hail and wind damage. There were numerous reports of quarter to golf ball size hail. Baseball size hail and wind gusts to 65 mph were reported in Jewell County Kansas around Burr Oak and Esbon. This damaged vehicles and crops in the area.

Heavy rains on August 18<sup>th</sup> and 19<sup>th</sup> caused flooding in Mitchell and Rooks counties. In Mitchell County Kansas, water levels were high enough in the town of Beloit to stall a few cars. Over in Rooks County, several county roads were washed out south of Stockton.

Ironically, as the severe weather usually starts to spin down, September 2006 brought the region's first tornados for the season.

On September 21st, it was a cool and dreary afternoon across north central Kansas. Thunderstorms began to roll north into the area from central Kansas around 2 pm. The first tornado spun up in Lincoln County and bounced north across the Mitchell County line southeast of Victor. One farmstead was hit on the 15-mile path. Outbuildings and a TV antenna/tower were damaged. A second tornado was spotted with the first tornado around Solomon Rapids. As it moved north on its six mile path, the tornado stayed in open country and caused no damage. The last confirmed tornado set down just northeast of Beloit and was on the ground for about six miles. No significant damage was reported. All three of the tornadoes were rated F0 on the Fujita scale.



# **Northwest Kansas**

## **Weather Summary – 2006**

National Weather Service Goodland, KS

The 2006 severe weather season in northwest Kansas brought several noteworthy events, but overall it was a fairly typical year with few extremes. The big weather story in March did not involve severe thunderstorms, but rather a major late winter storm which brought 12 to 14 inches of snow to most of the northwest Kansas counties on the 20th.

The variable nature of the weather in the area lived up to its reputation though, and only 12 days after the foot of snow which fell in late March, the first severe thunderstorms of the year rumbled across the region. On April 1<sup>st</sup>, golf ball sized hail fell in Norton County, and the first severe convective wind gust of 61 mph occurred in Graham County. Amazingly, this was the only day in April with reports of severe weather.



In May, the severe weather season began in earnest. Statistically, the months of May, June and July result in 85% of all severe reports in northwest Kansas, and 2006 would ultimately follow the historical trend. The first tornadoes of the season occurred on May 7<sup>th</sup> in Wallace County when two tornadoes developed west and southwest of the town of Wallace. They were observed by many local residents and lasted 3 and 7 minutes. Both were rated F0 on the Fujita Scale. Another weak (F0) tornado occurred in May on the 26<sup>th</sup> in Thomas county ENE of Mingo. Also on this day, hail to 1.5” fell in Sheridan County and 75 mph winds were reported in Gove County. May 31<sup>st</sup> rounded out the month with Goodland reporting flooding in town and Wallace county spotters reporting 70 mph winds.

The month of June brought 10 days with severe weather reports. June 15<sup>th</sup> and 16<sup>th</sup> were back-to-back days of very active weather. Three tornadoes were reported in Sherman County on the 16<sup>th</sup>. Two occurred within Goodland city limits (rated F1) with minor damage at several residences and local businesses. Elsewhere, golf ball sized hail and wind gusts to 80 mph occurred in Sheridan County. On June 20<sup>th</sup>, large hail to 2” and high winds roared across Rawlins, Decatur and Norton counties along the Nebraska border.

July 9<sup>th</sup> stands out as the most noteworthy severe weather day during the month when extremely heavy rainfall and flooding occurred in Cheyenne County near Bird City. Three to four inches of rain brought flooding in town with water one foot deep on some streets.

On August 7<sup>th</sup> a tornado developed in Colby (Thomas County) just south of Interstate 70 and moved northwest. Minor damage and several injuries from falling and flying debris were reported. A large sign supported by three I-beams was bent over to the ground as shown here. The tornado was rated F1 on the Fujita Scale. The remainder of August brought numerous minor flooding events to the area from rapid runoff.



The last severe thunderstorm reports of the year occurred on October 16<sup>th</sup> along the Nebraska border where penny to quarter sized hail occurred in Cheyenne County.



## **Southwest Kansas**

### **Weather Summary – 2006**

National Weather Service Dodge City, KS

The 2006 weather season began with record setting warmth. On January 3, the Dodge City Regional Airport set a new record high temperature when the mercury climbed to 78 degrees. This shattered the old record of 65 degrees set in 1898. The Garden City Regional Airport and the Medicine Lodge Airport also set new record high temperatures with 76 degrees and 72 degrees, respectively. January was also the first month since 1948 that every single day had daily temperatures above normal. The average daily high and average daily low temperatures were the warmest since 1948. January 2006 was the warmest January on record at Dodge City. The average daily temperature was 42.9° or a whopping 12.8° above the 1971-2000 normal of 30.1°! This January was also the warmest above normal of ANY MONTH! There was a very brief period of winter during the month when 2 to 4 inches of snow fell across southwest Kansas on the 9<sup>th</sup>.

Only a trace amount of liquid precipitation fell at the Dodge City Regional Airport in February, with normal being 0.66 inches. The month was mild, with maximum high temperatures 3.1 degrees above normal.

March came in like a lamb and went out like a lion. After several relatively quiet days, the weather began to take a turn for the worse. On March 12<sup>th</sup>, a wind storm blew through portions of western Kansas. Several large trees were blown down in Syracuse. Winds of 50 to 60 mph were common. Power lines came down in Kinsley. At the Dodge City airport, the visibility dropped to a mile at times when gusty winds to 58 mph resulted in blowing dust and dirt. There was some tree limb, fence and shingle damage reported across the area. There were only a few days for cleanup before a winter storm struck the region. By March 20<sup>th</sup>, a vigorous storm moved into the plains and produced a 60-mile wide blanket of snow 8 to 10 inches deep. The area was centered along a line from Ness City to Garden City to Ulysses to 10 miles north of Hugoton. There was also a 25-mile wide area of 8 to 10 inches of snow from Sublette southeast to Meade. The highest snowfall was recorded in the central part of Haskell County and northwest Hodgeman County into extreme eastern Finney County where 10 to 11 inches fell. Much of the region received an average of at least 4 inches. The one exception was in the southeastern portions of the Dodge City's CWA where 2 inches or less of snow was reported. After the storm ended, a brief lull in the weather took place. But just when the month was coming to an end, a second high wind event transpired. Winds in excess of 57 mph were recorded at Johnson City Middle School, Rolla grade school, the Liberal airport and the Medicine Lodge airport.

The month of April entailed two very active severe weather days. April 1<sup>st</sup> and 23<sup>rd</sup> brought a plethora of hail, high winds and even tornadoes. Three tornadoes tore across Pawnee, Barber and Pratt Counties on April Fools Day. Damage was reported in rural areas in both Barber and Pratt Counties but no injuries were reported. April 23<sup>rd</sup> resulted in several hail reports along with a few thunderstorm wind gusts. The worst damage occurred 2 miles north of Haviland in Kiowa County where an estimated with gust of 69 mph blew over a pivot irrigation sprinkler producing an estimated \$50,000 in damage.

May continued the pattern of active weather with severe weather outbreaks on 8 days. May 7<sup>th</sup> not only brought



large hail to a wide portion of western Kansas but also produced 3 tornadoes in Finney and Haskell Counties. Damage was done to several trees and to pivot irrigation sprinklers. Starting the afternoon of May 8<sup>th</sup> and continuing in the early morning hours of May 9<sup>th</sup>, a significant hail event occurred. Numerous locations received golfball size hail through the duration of this event. Just a few miles northeast of Hanston, in Hodgeman County, hail drifts up to 18 inches deep were reported. May 23<sup>rd</sup>, 25<sup>th</sup>, 26<sup>th</sup> and 29<sup>th</sup> were also hail and high wind storm days. A weak tornado touched down on the 25<sup>th</sup> just northeast of Garden City. No

damage was reported. The weather continued to be quite active on the 30<sup>th</sup>, as heavy rain and flooding were reported in addition to the hail and high winds. As much as 4.30" of rain fell during the overnight hours just west of Minneola in Clark County.

Thirteen days in June had at least one severe weather report. Two of the most active days were the 16<sup>th</sup> and the 21<sup>st</sup>. During the day of the 16<sup>th</sup>, there were 48 reports of large hail, severe winds and one weak tornado in Ness County. May 21<sup>st</sup> brought 64 reports of large hail and high winds. Baseball sized hail fell 16 miles west of Bloom in Ford County. In Grant, Kearny, Haskell and Edwards Counties, some structural damage was reported due to wind gusts in excess of 60 mph. The 22<sup>nd</sup> of the month saw more severe weather, including two tornadoes. Seward and Stafford Counties both reported tornadoes but no damage was observed. By the 29<sup>th</sup> and 30<sup>th</sup> of the month, heavy rain, in excess of 3 inches, fell in portions of Stafford and Ford Counties.

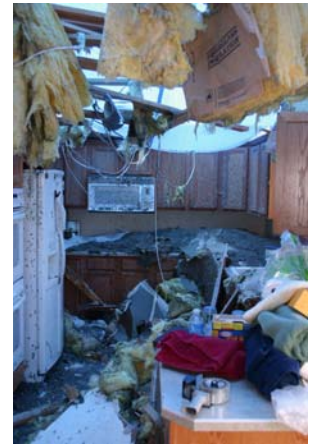
The month of July brought both severe weather and record high temperatures. New record high temperatures were set on July 19<sup>th</sup> at Medicine Lodge and Garden City when the mercury climbed to 109 degrees and 105 degrees respectively. The heat continued the next day when Garden City, Dodge City and Medicine Lodge once again recorded temperatures into the triple digits. On July 25<sup>th</sup>, Garden City climbed to 106 degrees breaking the old record of 103 degrees set in 2005. Several cooperative stations also shattered old records that day with temperatures well over 100 degrees. There were 13 days in July where severe reports of hail or thunderstorm wind gusts were received.

Two of the more notable events happened in Ford County. On July 26<sup>th</sup>, just north of Spearville, a house was destroyed as the result of a microburst that produced up to 120 mph winds! One minor injury occurred, when a door blew off the hinges and into the living area striking a 45 year old male. Wind speeds as high as 120 mph also destroyed a grain bin and cattle shed in the area. A cemetery across the street from the house that was destroyed, received heavy damage to trees and tombstones. On July 31<sup>st</sup>, a large dust devil caused significant damage in Ford County. Half of a roof was blown off a 50 by 120 foot metal shed and two power poles were snapped. The debris was blown over 150 yards.



The variety of severe weather phenomenon continued into the month of August. High

winds, heavy rain, large hail and even a tornado were reported during this time. The most costly event occurred on August 14<sup>th</sup> when 7.12 inches of rain fell in just 24 hours in the town of Rolla in Morton County. Stranded motorists and flooded basements resulted in an estimated cleanup cost of \$250,000.



September was a relatively quiet month overall. September 1<sup>st</sup>, 2<sup>nd</sup>, and 9<sup>th</sup>, resulted in a few heavy rain producing storms. Reports of 6.50 inches of rain fell 12 miles northeast of Ogallah in Trego County on the 1<sup>st</sup>. The following day, nearly 4 inches of rain fell in Stevens County. On the 9<sup>th</sup>, flooding occurred in Copeland in Gray County. Around 6 1/2 inches of rain caused numerous reports of high standing water and flooded basements. Only the top of fence posts could be seen in some locations. Many roads were closed, including Highway 144. There were also reports of rainfall in excess of 4 inches in Haskell and Trego Counties on that same day. September 15<sup>th</sup> and 16<sup>th</sup> brought the only substantial severe weather events of the month. Numerous reports of hail along with thunderstorm wind gusts in excess of 57 mph were reported both days. Two tornadoes touched down in Clark and Kiowa Counties on the 15<sup>th</sup> but no damage was reported. September will go down in the record books as the 5<sup>th</sup> coolest on record with an average of 64.6 degrees. This was 4.7 degrees below normal.

**KANSAS SEVERE WEATHER AWARENESS WEEK**  
**MARCH 12-16, 2007**

October began on a very hot note as temperatures climbed to 96 degrees. This tied the old record high for October 1<sup>st</sup> which was set in 2000. The heat did not subside. Just two days later, the all-time record high temperature for the month was set at Dodge City. On October 3, the mercury rose to 98 degrees. This broke the previous all-time record for the month of 96 degrees. Weather records at Dodge City date back to 1875. On October 26<sup>th</sup>, the weather changed considerably. An unusual outbreak of tornadoes occurred in southwest Kansas. When all was said and done, an astounding 28 tornadoes had dotted the landscape. These 28 tornadoes were confined to the counties of Ford, Grant, Clark, Gray, Comanche and Meade. Since 1955, this is the greatest number of tornadoes in a single day in our area (21 occurred on June 4, 1955).

Remarkably, only two of these tornadoes caused damage. In Ulysses (Grant County) part of the roof was blown off the hospital. Several sheds, fences and tree limbs also sustained damage. The first freeze of the season occurred on October 18<sup>th</sup> when the temperature fell to 31 degrees at the Dodge City Airport.



Summer returned in the month of November. On the 8<sup>th</sup>, 3 stations reached a scorching 90 degrees! Eight locations set records for the day. Seven of those locations were all-time November records!

Station	New Record	Old Record for date
Cimarron	87	79 (2005)
Hays 1S	90	83 (1980)
Healy	90	79 (1912)
Liberal	87	83 (1999)
Medicine Lodge	91	90 (1980)
Ness City	89	78 (1999)
Pratt 3W	89	87 (1980)
Wakeeney	89	82 (1980)

December weather will go down as one of the craziest in memory when two major storms impacted the area. The first was a major winter storm that produced copious amounts of rain, freezing rain, sleet and snow across much of western and south central Kansas. Rainfall of 2 to 3 inches fell in parts of Kiowa, Comanche and Barber counties. Snow and ice were restricted to the west.

Then the BIG ONE hit! An extreme winter storm crippled much of southwest Kansas on December 29-31. Widespread total precipitation from this storm ranged from 2 to 4 inches over much of Southwest Kansas. At the Dodge City airport, 3.21" of precipitation (rain, freezing rain and snow) fell from the storm. The only other time Dodge City, KS recorded over 3" of liquid equivalent precipitation in a single December storm was *December 19-22, 1877* when 4.31" was measured. There was even an area from Garden City to Dighton that had up to six inches of rain and freezing rain! This is incredible for anytime of the year, let alone for December...it's more than phenomenal! Significant, widespread damage to trees and especially utility lines, poles, and towers resulted from the 1/2" to 2 1/2" of ice accumulation. In an area from Sublette to Garden City, north through Dighton had the most severe damage. Over 60 thousand people were without electricity at one time or another from the nearly 10 thousand power poles that were taken down from the weight of the ice. Snow accumulations to as much as 32 inches were reported along the Colorado state line in Stanton County!

2006 will go down in history as another very active tornado year, second to just last year when a record number of 52 tornadoes occurred in our 27 county warning area (CWA). This year in our CWA, 41 tornadoes were recorded! But more importantly, there were no injuries or fatalities! Based on 57 years of data, the average tornado count for the Dodge City County warning area is 15.



# Extreme Northeast and East Central Kansas Weather Summary – 2006

National Weather Service Pleasant Hill, MO

This past year brought a variety of damaging weather to the seven Kansas counties served by the National Weather Service in Pleasant Hill, MO. While the season started with a bang, drought eventually took over keeping severe weather in check during most of the summer months.

Severe weather season roared in like a lion in March with the outbreak of March 12<sup>th</sup>. It started early on this date with the first F0 tornado reported in Leavenworth County shortly after 8 am. The tornado touched down briefly a mile east of Linwood and was strong enough to cause structural damage to several residences in the area. This same storm also produced a damaging swath of hail in Atchison, Leavenworth and Wyandotte Counties with the largest hail reported, as big as baseballs, at Basehor in Leavenworth County. In addition, straight line winds estimated to be around 60 mph produced some damage to the Great Wolf Lodge in Wyandotte County.



These early reports offered just a taste of what was to come later in the day. By early afternoon, the atmosphere had destabilized enough for another round of thunderstorms to develop. These storms produced another tornado, again an F0, at about 320 pm east of La Cygne in Linn County. Fortunately, the twister only damaged some trees as it remained in open country. However, much more widespread damage was reported across several counties due to hail. The NWS in Pleasant Hill received nearly 40 reports of large hail. While damaging hail fell in most counties, the largest observed was the size of softballs just east of Prescott in Linn County. All told, damage from the storms of March 12<sup>th</sup> was estimated at \$1.75 million.

In the wake of March 12<sup>th</sup>, eastern Kansas would have to wait about three weeks until severe storms struck again. On March 30<sup>th</sup> several severe thunderstorms developed, producing quarter to golf ball sized hail and a few wind gusts to 60 mph. Fortunately, there wasn't any damage reported with these storms.



April began rather slowly with just a few severe storms reported early. However on tax day, April 15<sup>th</sup>, Kansans had more to fear than the IRS as three tornados and large hail struck. The tornadoes, two in Leavenworth County and one in Wyandotte County all developed in open country and thus did not produce any damage. Another round of severe storms brought more hail on April 23<sup>rd</sup> with roof and car damage reported.

May brought one lone hail report, but things picked up a little in June. Large hail and damaging winds were reported on June 5<sup>th</sup>, 10<sup>th</sup>, and the 27<sup>th</sup>. The largest of the hail was reported on the 10<sup>th</sup> in Johnson County where golf ball sized hail fell.

July and August remained relatively quiet with a few hail and wind reports. There was also some minor flooding in Johnson County as flood water from a thunderstorm closed three county roads on July 11<sup>th</sup> and 12<sup>th</sup>. Heavier rains on August 27<sup>th</sup> produced flooding along several roads and intersections in Johnson and Wyandotte Counties.

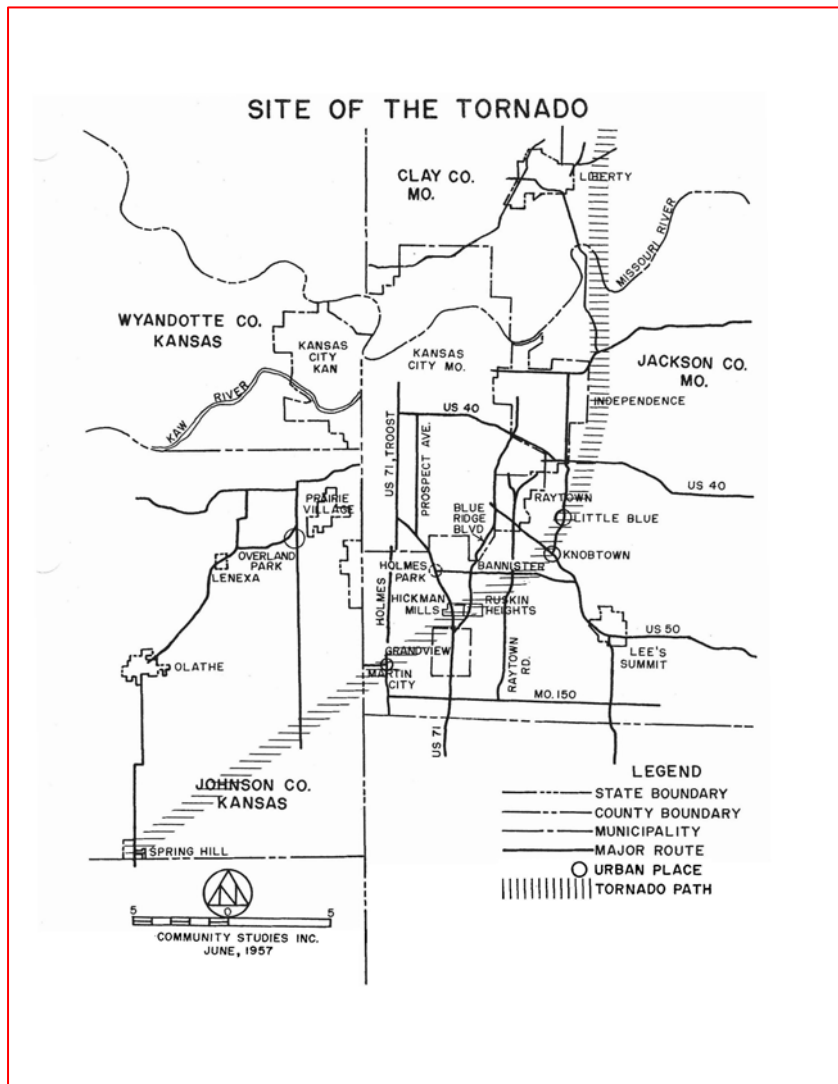


**KANSAS SEVERE WEATHER AWARENESS WEEK**  
**MARCH 12-16, 2007**

## 50 Years Since the Ruskin Heights Tornado

National Weather Service Pleasant Hill, MO

May 20, 2007 marks the 50 year anniversary of the Ruskin Heights tornado. The Ruskin Heights tornado is the “Granddaddy” of all of Kansas City’s tornado disasters to date. The tornado claimed 45 lives and caused millions of dollars in damage.



The afternoon of May 20<sup>th</sup> started out blustery and stormy with strong southerly winds and severe thunderstorms over portions of Kansas and Nebraska. Numerous tornadoes had already been reported in Kansas and Nebraska. At 3:28 pm, the Weather Bureau at Concordia, KS reported a tornado in sight 6 to 7 miles southeast of their location. Shortly after that, the Weather Bureau in Kansas City issued Severe Weather Forecast #167 which included eastern Kansas and western Missouri (including the Kansas City metro area). At 4:30 pm, the Weather Bureau issued Severe Weather Forecast #169. The forecast called for scattered severe thunderstorms and several tornadoes the rest of the afternoon through 9 pm.

The storm, which would later produce the Ruskin Heights tornado, was first seen on radar near Towanda, KS. The storm continued to strengthen and was producing 1” diameter hail by the time it reached Emporia at 5:30 pm. The storm strengthened even more as it moved

northeast at 45 to 50 mph toward Kansas City. The storm produced an intense tornado which touched down near Williamsburg, KS at about 6:15 pm. By 6:52 pm, a tornado had been reported about 20 miles south-southwest of Kansas City in Spring Hill, where it caused significant damage.

At 7:15 pm, the Weather Bureau in Kansas City issued a bulletin stating the largest thunderstorm was then located from the southwest portion of Kansas City to near Olathe. There had been numerous unconfirmed reports of tornadoes from near Paola to Ottawa. Radar continued to show the storm as very intense as it moved across the southern Kansas City metro communities. At 7:37 pm, an airline pilot reported a funnel 2 miles west of Grandview Airport. At 7:45 pm, another pilot reported a tornado north of Grandview (the Ruskin Heights area) moving northeast. The storm caused extensive damage in the Kansas City suburbs of Martin City and

Hickman Mills. Ruskin Heights was hardest hit, and therefore the storm has since been named “The Ruskin Heights Tornado”. The storm continued to produce tornadoes in the Raytown, Independence and Liberty areas

from about 8 pm to 8:45 pm, but the damage was not as extensive as in the Spring Hill, Martin City and Ruskin Heights areas.

The tornado track would end up being 71 miles long and was nearly ½ mile wide at times. Many witnesses reported one main tornado with multiple funnels forming and dissipating on the perimeter of the large vortex.

The Ruskin Heights tornado was Kansas City's first tornado disaster following the beginning of the Watch and Warning System. No "Metro" warning system had been developed at that time, however a teletype system was newly in place, allowing the Weather Bureau to send bulletins directly to radio and television stations. The frequently updated bulletins likely saved hundreds of lives.

## **National Weather Service Provides Fire Weather Forecasts in Kansas**

Weather is a critical ingredient in the behavior and development of wildfires and in planning and executing controlled burns. In early October 2006, the National Weather Service offices in Dodge City, Goodland, Wichita, Topeka and Hastings, Nebraska (the Pleasant Hill, MO and the Springfield, MO offices already had fire weather programs) began providing a full suite of fire weather forecast products for the state of Kansas.

The National Weather Service has provided fire weather forecast products and services for many parts of the nation for decades. Drought and unusual fires in the southern plains of the United States occurred last winter. In Kansas, drought conditions over the winter and spring led to numerous fast moving grass fires that caused damage to homes, businesses and emergency vehicles.



In support of local, state and federal emergency management, land management agencies and firefighters, the National Weather Service is now providing the following forecast products for Kansas:

**Fire Weather Planning Forecasts** – A seven day forecast with specific fire weather elements. The products has a short narrative describing the weather pattern, followed by a tabular 1 to 2 day forecast of cloud cover, precipitation probability,

type and amount, maximum and minimum temperatures, relative humidities, winds, mixing height, smoke dispersal, lightning activity level and Haines indices. The product also contains a narrative outlook for days 3 to 7.

**Spot Forecasts** – point specific forecasts that are generated at the request of state and federal land management agencies prior to controlled or prescribed burns. In a wildfire, spot forecasts can be generated for local, state, or federal emergency management or firefighters. Spot forecasts are requested via the webpage for the servicing National Weather Service office. Once the request is received, the spot forecast can be prepared within 30 to 45 minutes and is faxed back to the requesting agency or disseminated via the webpage.

**Red Flag Program** – The Red Flag Program was designed to warn firefighters of the potential for the development and growth of large wildfires. When dry fuels or cured vegetation exist in combination with critical fire weather elements, the National Weather Service will issue a Fire Weather Watch if those conditions are expected within the next 18 to 36 hours, or a Red Flag Warning when conditions will occur within the next 12 hours. The weather conditions that typically prompt the issuance of a watch or warning, are high winds and

**KANSAS SEVERE WEATHER AWARENESS WEEK  
MARCH 12-16, 2007**



low relative humidities that last for 3 hours or longer. Dry lightning or rapid wind shifts also cause extremely dangerous fire weather conditions.

**Rangeland Fire Danger Index** – A general product that describes the day 1 fire potential for six divisions of the state where tallgrass prairie is the prevailing form of vegetation. The index is generated using minimum afternoon dewpoint, average afternoon sky condition, percent green of the vegetation as determined by satellite observation, maximum afternoon temperature, and average afternoon wind speed. The product gives 5 categories with descriptive ratings from low to extreme.

The National Weather Service's fire weather program in Kansas will aid in fire safety and preparation, as well as allowing local, state and federal officials to determine critical fire situations that may require additional resources. The Fire Weather Watch and Red Flag Warning program raises the awareness of critical fire weather days to citizens living and traveling in Kansas. If a Fire Weather Watch or Red Flag Warning is issued for your area, information will be included in the Hazardous Weather Outlook product and played over NOAA All Hazards Weather Radio.

# Flood Safety

Did you know that floods, especially flash floods, kill more people each year than any other weather phenomenon? And do you know why? Well, the main reason is that people underestimate the force and power of water. As little as six inches of fast moving water can sweep you off your feet and 18 to 24 inches of water is enough to float a car and carry it away. If you see a road barrier across a flooded roadway, then “**Turn Around. Don’t Drown!**” This is the National Weather Service’s new Motto. We want you to remember this if you encounter a situation where you see water covering a roadway. You will not know the depth of the water or know the condition of the road under the water. Did you also know that about 60 percent of all flood deaths result from people trying to cross flooded roads in vehicles when the moving water sweeps them away? **So Turn Around. Don’t Drown!** Don’t become one of the statistics.

Helpful safety rules to adhere to:

When heavy rains threaten, monitor NOAA Weather Radio or favorite news source for weather information. If flooding occurs, get to higher ground. Leave areas subject to flooding, such as dips, low spots and underpasses. Avoid areas already flooded. Do not attempt to cross flowing streams. Never drive through flooded roadways. ***Turn Around Don’t Drown.*** If your vehicle is suddenly caught in rising water, leave it immediately and seek higher ground. Look for a flotation device. Be especially cautious at night when it is harder to see flood dangers.



Please report flooding to your local authorities or The National Weather Service. Finally, know when you are at risk. Keep abreast of the latest weather watches and warnings. Let caution and good sense be your guides. Remember, **Turn Around. Don’t Drown!**

# Damaging Thunderstorm Winds

Many times when storm damage occurs to buildings, trees or other objects, people automatically say it was **a Tornado!** The “glamour” of having a tornado seems to overwhelm scientific evidence and common sense. Although difficult for many to understand, in most years, **thunderstorm winds cause more damage, and are more frequent than tornadoes.** In addition, property and crop damage can be more severe from thunderstorm winds than from tornadoes. Thunderstorm winds can exceed 100 mph while the most common tornado winds are generally not this strong.



Thunderstorm winds come in many forms, sometimes from squall lines of thunderstorms and other times in the form of downburst winds. The most frequently encountered type of damaging **straight-line wind** in a thunderstorm is that associated with the leading edge of the rain-cooled outflow, known as the **gust front**. Although most thunderstorm outflow winds range from 30 to 50 mph, on occasion these winds can exceed 100 mph. Downburst-producing storms often give little advance indications of the imminent danger on weather radar or to the spotter, so warnings are difficult to issue.



In 2004, thunderstorms winds produced an estimated \$5.5 million in property damage, according to the publication Storm Data. This was about 1/6<sup>th</sup> the amount of tornado damage in 2004. However, in most years, thunderstorm wind damage is more than that caused by tornadoes.

To be safe from strong thunderstorm winds, go inside a sturdy building but stay away from windows that could break. If available, get to a basement or underground shelter. Large hail and flooding rains may accompany strong winds, so be alert to these dangers, also. Stay informed about the weather at all times!

# Tornado Safety Tips

● **IN HOMES OR SMALL BUILDINGS :** Go to the basement or cellar (if available) or to an interior room on the lowest floor, such as a closet or bathroom. Upper floors are unsafe. If there is no time to descend, go to a closet, a small room with strong walls, or an inside hallway. Wrap yourself in overcoats or blankets to protect yourself from flying debris.

● **IN SCHOOLS, HOSPITALS, FACTORIES, OR SHOPPING CENTERS:**  
Go to interior rooms and halls on the lowest floor. Stay away from glass enclosed places or areas with wide-span roofs such as auditoriums and warehouses. Crouch down and cover your head. Don't take shelter in halls that open to the south or the west. Centrally-located stairwells are good shelter.

● **IN HIGH-RISE BUILDINGS:** Go to interior small rooms, halls, rest rooms or designated shelter areas. Stay away from exterior walls, elevators, doors or glassy areas.

● **IN CARS OR MOBILE HOMES: ABANDON THEM IMMEDIATELY!!!** Most deaths occur in cars and mobile homes. If you are in either of those locations, leave them and go to a substantial structure or designated tornado shelter.

● **IF NO SUITABLE STRUCTURE IS NEARBY:** Lie flat in the nearest ditch or depression and use your hands to cover your head. Be alert for flash floods.

● **DURING A TORNADO:** Absolutely avoid buildings with large free-span roofs. Stay away from west and south walls. Remember: lowest level, smallest room, center part.

● **TO PREPARE FOR A TORNADO:** Store water in clean covered containers. You should keep disaster supplies in your home at all times (i.e. flashlight, radio first aid kit.).

● No matter where you are, **do some advance planning..** Identify protective areas you can get to in a hurry. Obtain a **NOAA Weather Radio** that will provide an alarm if a tornado watch or warning is in affect for your county.



**The key to tornado survival is to be prepared and to take immediate action when a warning is issued or when you spot a tornado. Remember, the actions you take during a tornado may save your life and the lives of your family.**

**Bottom Line for Tornado Safety, Get Down and Cover Up!!**

# Sirens Are An Outdoor Warning System

Every year the National Weather Service and the Emergency Management communities get together and provide severe weather information for the public. Every year we emphasize the fact that the Outdoor Sirens are just that...An Outdoor Warning System. Every year we get a multitude of calls telling us that the sirens can't be heard while in the house.

Each spring the weather gets a little bit unsettled and if you have lived in Kansas for any length of time you know that. It is not the job of the Weather Service, Emergency Management, Law Enforcement, the 9-1-1 Center, the Fire Department or anyone else to individually notify you that the weather is bad. Every individual has the responsibility to pay attention to the weather, especially during severe weather season, and what the local media outlets have to say about the weather. They are your first line of warning...the media...Every radio and television station has direct access to what is going on and they pass this on just as quickly as possible so that the public can take the required protective action. If you are waiting for the sirens to be your warning system at home, then you are taking unnecessary risks with your life, as well as the lives of anyone else that may be in the home with you. Just ask the families of the people throughout the country who wait for the sirens year after year. They were the fatalities during storm. Everyone who knew something was going on, just from what they were hearing through the media, and through personal experience went to shelter and survived the tornado, the others waited to hear the sirens and didn't.



This scenario has played itself out time and time again with the same tragic end. People ending up seriously injured or killed unnecessarily. This makes the Weather Service personnel and the emergency response community wonder, "what more can we do to get these people to listen!" Hundreds of volunteers put their lives on the line every time there is severe weather in the local area. They do this because they care about the people in their communities and want to make sure those people are given the best chance at survival. If you don't care to think about what happens to you, think about those volunteers. When somebody is seriously injured or killed, it affects them also. They sit and wonder, what more could I have done...what did I do wrong...is this my fault? Of course the answers are, "you did all you could, you did it just right, and no, it's not your fault". They, the victim didn't listen. Now I am not saying that every victim didn't listen, sometimes no matter what, there will be victims. We just don't want the victim of the unnecessary injury or death.

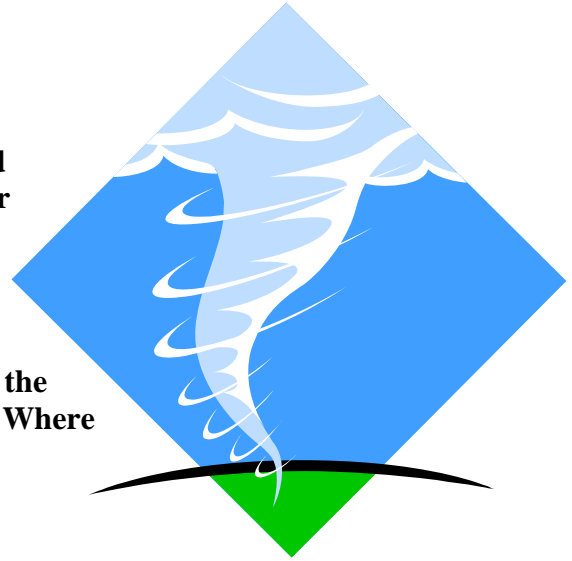
Take responsibility...listen to the media....take protective action....survive to enjoy the wonderful warm sunny days that also come this time of year.



# 2007 Severe Weather Awareness Quiz

By National Weather Service Offices in Kansas

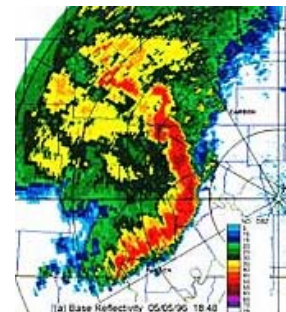
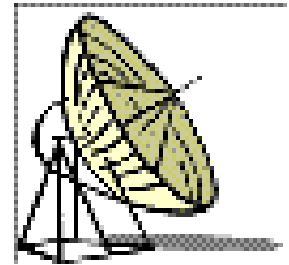
- 1.) **What is it called when the air is so dry, that the precipitation evaporates before it reaches the ground?**
  - a. Early Evaporation
  - b. Virga
  - c. Radiation
  - d. Advection
- 2.) **Cumulonimbus clouds are tall, dense clouds shaped like a block or anvil. They signal thunderstorms and also spawn tornadoes, as well as other violent weather effects such as hail and lightning.**
  - a. True
  - b. False
- 3.) **A tornado can touch down in a populated area and destroy one home while leaving the home next door virtually untouched.**
  - a. True
  - b. False
- 4.) **Studies have been done to show what area records the most frequent lightning strikes in a calendar year. Where is it?**
  - a. Texas
  - b. Kansas
  - c. Florida
  - d. Georgia
- 5.) **Tornadoes are obviously a major concern in Kansas during the spring months, and several measures are used to warn people about incoming severe weather. These measures include:**
  - a. Outdoor warning devices (Sirens)
  - b. Media Bulletins
  - c. NOAA Weather Radio
  - d. All of the above
- 6.) **As spring gives way into summer, cool-air incursions become few and far between, and temperatures in Kansas often soar above 100 deg F. However, this does not mean the end of the storm season, as the plentiful Gulf moisture in the area needs only the appropriate catalysts to trigger powerful thunderstorms. These catalysts can include:**
  - a. Hurricane
  - b. Dry Line
  - c. Daytime Heating
  - d. Both B and C



KANSAS SEVERE WEATHER AWARENESS WEEK  
MARCH 12-16, 2007



- 7.) **What type of clouds are towering clouds with anvil heads that bring thunderstorms?**  
 a. Cirrus  
 b. Cumulonimbus  
 c. Nimbostratus  
 d. Stratus
- 8.) **Which type of supercell is most likely to develop into a squall line during its later stages?**  
 a. Low Precipitation  
 b. High precipitation  
 c. Classic Supercell
- 9.) **Early radar detection of potential tornadic storm systems have greatly reduced the number of deaths from tornadoes. The last single storm to take 80 or more lives occurred in 1955 in this town:**  
 a. Flint, MI  
 b. Tupelo, MS  
 c. Gainesville, GA  
 d. Udall, KS
- 10.) **Define weather expected with a severe thunderstorm warning.**  
 a. Wind gusts of 50 mph  
 b. Wind gusts of 58 mph and hail 1 inch in diameter  
 c. Wind gusts of 55 mph and hail pea size in diameter or larger
- 11.) **What are the three ingredients needed for thunderstorm development?**  
 a. Moisture, source of lift, and instability  
 b. Moisture, instability, and wind  
 c. Moisture, heat, and a planned picnic
- 12.) **What phenomena can be mistaken for a funnel cloud?**  
 a. Rain Shaft  
 b. Scud Cloud  
 c. Smoke Plume  
 d. All of the above



\*\*\*\*\* Quiz Answers \*\*\*\*\*

- |      |         |         |       |
|------|---------|---------|-------|
| 1. B | 2. True | 3. True | 4. C  |
| 5. D | 6. D    | 7. B    | 8. B  |
| 9. D | 10. B   | 11. A   | 12. D |